

CHAPTER 5

Transuranic Waste

5.1 Introduction

This chapter summarizes the transuranic waste (TRU waste) data provided in *The National TRU Waste Management Plan*, Revision 2, published in December 2000.¹ The National TRU Waste Management Plan, a DOE-wide program plan for TRU waste, addresses the management and disposal of TRU waste for the DOE TRU waste system.

The National TRU Waste Management Plan data are used in this chapter because they are the best available data. The data in the FY 2000 EM Corporate Database, which are used in other chapters of this report, provided the foundation for the data in the National TRU Waste Management Plan. However, the Carlsbad Field Office staff, which manages the National TRU Program Office, subsequently clarified several of the TRU waste data through discussions with TRU waste generator sites. The EM corporate data will be updated accordingly.

This chapter also includes data on the radioactivity of TRU waste. Radiological data are not routinely collected and reported at the DOE or waste type level. The last comprehensive DOE-wide summary was prepared in 1996. Since that time, the estimate of retrievably stored TRU waste has increased by approximately 15 percent (14,500 cubic meters).

Buried TRU waste data are not presented in this chapter; they are provided in Chapter 6.

5.1.1 TRU Waste Definition and Explanation

TRU waste is defined as:

Radioactive waste containing more than 100 nanocuries of alpha-emitting transuranic isotopes per gram of waste, with half-lives greater than 20 years (DOE Order 435.1, issued July 1999).

The term “transuranic” refers to those elements with an atomic number greater than that of uranium (i.e., atomic number > 92). The use of the term “transuranic” as a type of waste is relatively new. Prior to 1970, the DOE disposed of waste as it was generated, typically on-site. Since 1970, with a change in regulatory framework, the waste classified as TRU has had different disposal requirements and caused the DOE to seek alternative methods for disposal. (See also, Chapter 6: Buried Transuranic Waste.)

Highlight 1. How to obtain a copy of the National TRU Waste Management Plan (NTWMP)

Copies of the NTWMP are available:

- On the Waste Isolation Pilot Plant (WIPP) Home Page (<http://www.wipp.carlsbad.nm.us>);
- Upon written request to:
U.S. Department of Energy,
Carlsbad Field Office, P.O. Box 3090,
Carlsbad, NM, 88221; or
- By calling: 1-800-336-9477

¹ U.S. Department of Energy, Carlsbad Field Office, *The National TRU Waste Management Plan*, DOE/NTP-96-1204 Rev. 2, (December 2000).

TRU waste consists of clothing, tools, rags, debris, and other such items contaminated from small amounts of radioactive elements – mostly plutonium. These elements are radioactive, created by humans, and have an atomic number greater than (“trans”) uranium.

TRU waste generation began with the manufacture of nuclear weapons in the 1940s. Research and development efforts at laboratories around the country, as well as weapons production, account for the majority of TRU waste in today’s inventory. Additional TRU waste will be generated as many DOE sites make the transition from nuclear weapons production to environmental restoration and decommissioning.

TRU waste is classified as either contact-handled (CH) or remote-handled (RH), depending on the radiation level at the surface of the TRU waste package at the time of packaging. If the radiation level equals or exceeds 200 millirem/hour, the package is classified as RH TRU waste. CH TRU waste contains relatively small quantities of fission and activation products that produce highly penetrating radiation; typically, TRU waste emissions consist mostly of alpha particles and some neutrons and primarily low-energy gamma and X-rays. RH TRU waste typically contains a greater amount of fission and activation products that produce highly penetrating radiation and produce a higher level of radiation at the surface of the package.²

5.2 The National TRU Waste Management Plan

The DOE Carlsbad Field Office (CBFO) National TRU Program Office serves as the focal point and leader of the nation’s TRU waste management efforts. In December 2000, the CBFO published the National TRU Waste Management Plan, Revision 2 (hereafter NTWMP). The NTWMP addresses the management and disposal of TRU waste for the DOE TRU waste system. Copies of the NTWMP are available at the sources shown in Highlight 1.

A major CBFO milestone occurred in March of 1999, when the Waste Isolation Pilot Plant (WIPP) became operational. Located in southeastern New Mexico, WIPP is designed for the safe, permanent disposal of transuranic radioactive waste left from the production of nuclear weapons. Project facilities include excavated rooms 2,150 feet underground in an ancient, stable salt formation. Table 5-1 shows the number and volume of CH TRU waste shipments to WIPP as of December 31, 2000.

Table 5-1
Shipments of CH TRU Waste to WIPP as of
December 31, 2000

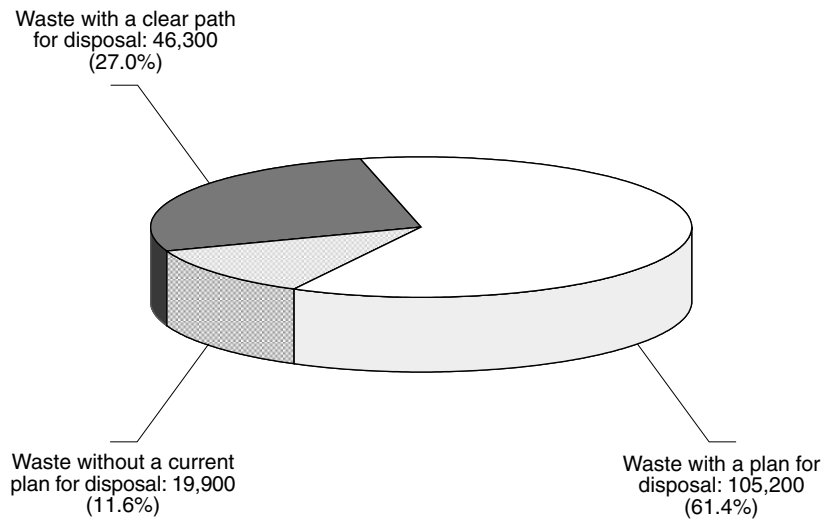
State	Shipping Site	Number of Shipments	Volume (cubic meters)
CO	Rocky Flats Environmental Technology Site	76	508
ID	Idaho National Engineering and Environmental Laboratory	30	205
NM	Los Alamos National Laboratory	17	190
WA	Hanford Site	5	36
Total		128	939

5.3 TRU Waste Management

Waste in the DOE TRU waste management system follows a basic process for disposal. TRU waste generator sites report volumes of stored and projected waste, which are then segregated into three categories based on whether the waste has a clear path for disposal, has a plan for disposal, or is without a current plan for disposal. These disposition categories enable site TRU program and TRU waste managers and the CBFO to develop operational and strategic plans for managing TRU waste. The data in this chapter (see Section 5.4) include volumes from all three of these categories.

² U.S. Department of Energy, Office of Environmental Management, *Integrated Data Base Report—1996: U.S. Spent Nuclear Fuel and Radioactive Waste Inventories, Projections, and Characteristics*, DOE/RW-0006, Rev. 13 (December 1997).

Figure 5-1
TRU Waste^a Managed by the DOE
 (cubic meters)



Notes:

- Volumes rounded to the nearest hundred for data presentation.

^a Combined volumes of CH TRU waste and RH TRU waste.

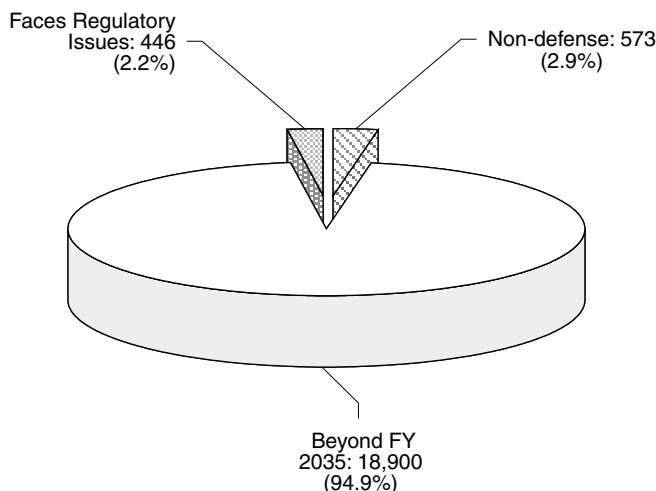
TRU waste with a clear path for disposal is waste that can readily be certified for disposal under the current regulatory framework and that has the associated infrastructure in place for its disposition. WIPP is the DOE's only permitted TRU waste disposal facility. Currently, the only TRU waste with a clear path for disposal is that waste destined for WIPP. WIPP-acceptable waste is defined as defense-generated TRU waste that can conform to the requirements of the WIPP waste acceptance criteria (WAC) and the WIPP hazardous waste facility permit (HWFP). As shown in Figure 5-1, 27 percent, or 46,300 cubic meters, of the TRU waste managed by the DOE has a clear path for disposal, most of which resides at the Hanford Site, Los Alamos National Laboratory, and Rocky Flats Environmental Technology Site.

TRU waste with a plan for disposal is waste at sites with an associated issue that must be resolved prior to the generator site being able to certify the waste for disposal. These needs are primarily infrastructure (e.g., planned waste repackaging or treatment facilities), technology (e.g., development of a hydrogen gettering device to remove excess hydrogen from waste packages), and regulatory issues (e.g., whether WIPP will accept polychlorinated biphenyl (PCB) contaminated waste). The DOE has plans in place for the funding and construction of the required infrastructure as well as for the development and implementation of the required technologies and regulatory change(s).

TRU waste without a current plan for disposal is TRU waste that is either prohibited from disposal at WIPP or will be generated after the end of WIPP's planned operational life. Although a small amount, the waste of primary concern is that prohibited from disposal at WIPP by current legislation, such as waste contaminated with reactive or corrosive substances, and TRU waste generated from non-defense activities (see Figure 5-2). The remainder of the TRU waste is waste projected to be generated after the end of WIPP's planned operational life. WIPP's planned operational life as a disposal facility is 35 years (i.e. until 2035). At some point close to the end of the assumed operational lifetime, the facility will be evaluated to determine if it is technically and economically feasible to continue operations. The costs of continued operations will be compared with the costs of building an alternative facility or other means of waste disposal. The over-arching concern will be to ensure the waste has a disposal path. According to

DOE Order 435.1, "Radioactive Waste Management," the DOE is responsible for disposition of all categories of TRU waste under its control.

Figure 5-2
Volume of TRU Waste^a Not Acceptable for Disposal at WIPP
(cubic meters)



Note:

^a Combined volumes of CH TRU waste and RH TRU waste.

5.4 TRU Waste Volume Data

The NTWMP presents a snapshot of the TRU waste system as it currently exists, including shipping schedules and each site's current waste inventory knowledge. This chapter provides summary level baseline data from the NTWMP for current (end-of-FY 2000) inventories as well as future planned volumes of TRU waste shipments and disposal at WIPP. Finally, as previously noted, this chapter provides data on the volume and radioactivity of TRU waste in inventory at the end of FY 1996 as these are the best data available on TRU waste radioactivity.

The data presented in the following pages are divided by CH TRU waste and RH TRU waste because CH TRU waste and RH TRU waste are managed separately.

Highlight 2. About the Data in This Chapter

This chapter summarizes the TRU waste data provided in *The National TRU Waste Management Plan*, Revision 2, published in December 2000 (see Footnote 1). This chapter also includes data on the radioactivity of TRU waste. The best source for the radioactivity data is the DOE's *Integrated Database Report—1996, Rev. 13* (see Footnote 2). With the exception of the 1996 data included to provide an estimate of TRU waste radioactivity, the rest of the chapter provides recent (FY 2000) data on TRU waste.

Definitions:

FY 2000 Inventory (Storage): The amount of waste, at the end of FY 2000, awaiting treatment or disposal capability, in such a manner as to not constitute disposal of the waste.

Projected Generation: The part of the inventory that has not been generated, but is currently estimated to be generated between FY 2001 and FY 2034.

Planned Disposal: Volume projected to be disposed of at WIPP between FY 2001 and FY 2034.

5.4.1 CH and RH TRU Waste Inventory (Storage), Generation, and Disposal (Current and Projected)

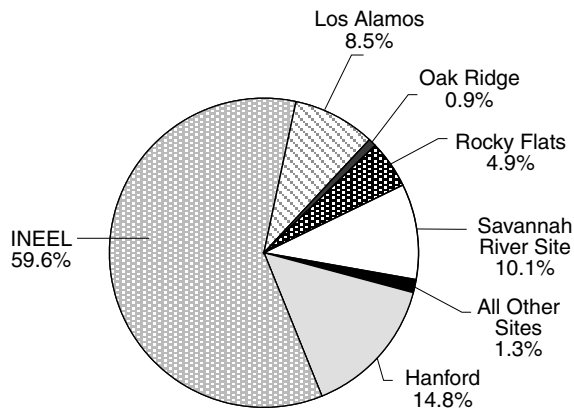
The total volume of TRU waste managed by the DOE – currently in inventory (storage) and projected through 2034 – is estimated to be approximately 171,000 cubic meters. WIPP's total capacity for both CH TRU waste and RH TRU waste is set at 176,00 cubic meters by the Land Withdrawal Act, with the total volume of RH TRU waste not exceeding 7,080 cubic meters.

Tables 5-2 and 5-3 and Figures 5-3 through 5-5 provide data on the current (through FY 2000) and future (FY 2001- FY 2034) volumes of CH and RH TRU waste.

Table 5-2 shows the current and projected volumes of CH TRU waste inventories, generation, and disposal at WIPP. The total volume of CH TRU waste managed by the DOE – in inventory (storage) and projected – is estimated to be approximately 167,000 cubic meters. A portion of this waste will be treated or repackaged prior to disposal. The volume of CH TRU currently scheduled for disposal at WIPP is approximately 64 percent of the WIPP CH TRU waste capacity.

Table 5-3 shows the current and projected volumes of RH TRU waste inventories, generation, and disposal at WIPP. The total volume of RH TRU waste managed by the DOE – in inventory (storage) and projected – is estimated to be 4,030 cubic meters. A portion of this waste will be treated or repackaged prior to disposal. The amount of RH waste currently scheduled for disposal at WIPP is approximately 26 percent of the legally-allowed RH disposal capacity at WIPP.

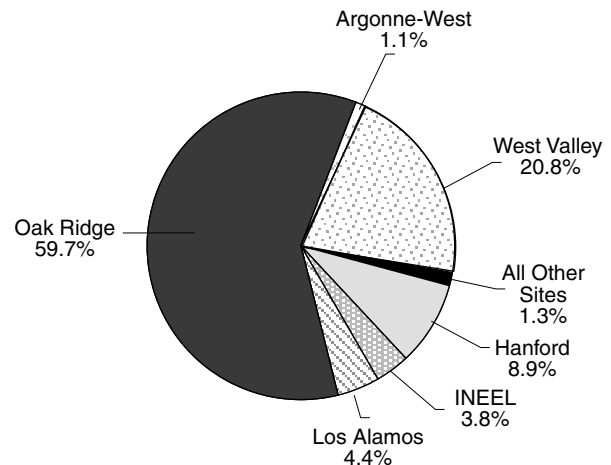
Figure 5-3
Sites' Relative Contributions to the
CH TRU-Waste Volume in Inventory:
FY 2000 Actuals



Notes:

- At the end of FY 2000, the total volume of CH TRU waste in inventory (storage) was approximately 108,884 cubic meters. See Table 5-2 for further details.
- Percentages may not add to exactly 100% due to data rounding.

Figure 5-4
Sites' Relative Contributions to the
RH TRU-Waste Volume in Inventory:
FY 2000 Actuals



Notes:

- At the end of FY 2000, the total volume of RH TRU waste in inventory (storage) was approximately 2,246 cubic meters. See Table 5-3 for further details.
- Percentages may not add to exactly 100% due to data rounding.

**Table 5-2. Total CH TRU Waste Inventory (Storage), Generation, and Disposal Volumes:
FY 2000 - FY 2034**

In cubic meters

State	Site	Site Code	FY 2000 Inventory (Storage) ^a	Projected Generation	Total (Inventory/Storage + Projected Generation)	Disposed at WIPP (By End of 2000)	Planned Disposal at WIPP ^b
CA	Energy Technology Engineering Center	ETEC	2	-	2	-	2
	General Electric-Vallecitos Nuclear Center ^c	GE-VNC	9	-	9	-	9
	Lawrence Berkeley National Laboratory ^d	LABL	1	-	1	-	-
	Lawrence Livermore National Laboratory-Main Site	LLMS	295	1,220	1,515	-	971
CO	Rocky Flats Environmental Technology Site	RFTS	5,307	10,557	15,864	508	14,749
ID	Argonne National Laboratory - West	ANLW	-	-	-	-	-
	Idaho National Engineering and Environmental Laboratory ^e	INEEL	64,878	12,590	77,468	205	44,461
IL	Argonne National Laboratory - East	ANLE	95	151	246	-	151
	U.S. Army Command	ARMY	3	-	3	-	3
KY	Paducah Gaseous Diffusion Plant ^f	PGDP	12	-	12	-	-
MO	Missouri University Research Reactor	MURR	1	-	1	-	1
NM	Los Alamos National Laboratory	LANL	9,213	13,644	22,857	190	14,889
	Lovelace Respiratory Research Institute ^g	LRRI	6	14	20	-	-
	Sandia National Laboratories-NM ^g	SNLN	25	64	89	-	-
NV	Nevada Test Site	NVTS	665	-	665	-	720
NY	Knolls Atomic Power Laboratory	KAPL	-	-	-	-	-
	Separations Process Research Unit	SPRU	-	470	470	-	50
	West Valley Demonstration Project ^d	WVDP	73	20	93	-	-
OH	Columbus Environmental Management Project- West Jefferson (Battelle Columbus Laboratories)	CEMP	-	4	4	-	4
	Miamisburg Environmental Management Project (Mound)	MEMP	247	-	247	-	247
PA	ARCO Medical Products Co. ^d	ARCO	0.1	-	0.1	-	-
	Bettis Atomic Power Laboratory	BAPL	18	-	18	-	18
SC	Savannah River Site	SARS	10,991	3,244	14,235	-	15,975
TN	Knolls Atomic Power Laboratory- Nuclear Fuel Services	KAPL-NFS	5	208	213	-	213
	Oak Ridge Reservation ^h	ORTN	963	520	1,483	-	542
VA	Babcock & Wilcox- NES ^c	B&W-NES	18	-	18	-	18
WA	Hanford Site	HASI	16,100	15,900	32,000	36	13,600
Totalⁱ			108,884	58,528	167,412	939	106,623

Notes:

• Hyphens indicate volumes of zero.

• Due to data rounding, the totals in this table may not equal the exact sum of the site-specific data. See also footnotes f and g below.

^a The collection and management of waste for the purpose of awaiting treatment or disposal capability, in such a manner as to not constitute disposal of the waste.^b The quantities reflect any volumetric expansion or reduction that would occur during waste processing.^c Waste may not be of defense origin; compliance with Land Withdrawal Act (LWA) LWA requirement will need to be demonstrated prior to disposal at WIPP.^d Waste is of commercial origin and may not meet the LWA requirement for disposal at WIPP.^e The original projected volume of 111,221.3 cubic meters included 5,000 cubic meters of TRU waste from the High-Level Waste Program, which leaves 106,221.3 cubic meters from Environmental Restoration activities. 72,832 cubic meters of this ER volume is contaminated soils that, following treatment, will result in 4,823 cubic meters of TRU waste. 33,389 cubic meters is contaminated debris that, following treatment, will result in 2,767.3 cubic meters of TRU waste. The TRU waste from ER and HLW activities together total 12,590.3 cubic meters and is projected to be disposed at WIPP.^f Waste from PGDP will be shipped to ORTN for subsequent shipment to WIPP for disposal. Waste volume of 11.7 cubic meters not included in table Total Waste Volumes since this volume is also included in the ORTN waste volume total.^g Waste from LRRI will be shipped to SNLN for subsequent shipment with SNLN waste to LANL. LRRI and SNLN waste volumes of 19.9 cubic meters and 88.5 cubic meters respectively are included in the LANL waste volumes and therefore are not included in this table since this volume is also included in the LANL waste volume total.^h Oak Ridge National Laboratory (within the Oak Ridge Reservation).ⁱ The total waste volume to be disposed of differs slightly from the 106,387 cubic meters cited in the Revision to the Record of Decision for the DOE's Waste Management Program: Treatment and Storage of Transuranic Waste, published in the *Federal Register* on December 29, 2000. The change (236 cubic meters) is due to subsequent clarifications of: (1) the amount of waste to be shipped from RFTS in FY 2005 (an additional 295 cubic meters); and (2) the amount of waste from LRRI and SNLN to be shipped to LANL before the end of FY 2034 (a decrease of 59 cubic meters). It should be noted that the total waste volume shown in the table remains significantly below the 113,592 cubic meters originally evaluated in the Waste Management Programmatic Environmental Impact Statement (DOE/EIS-0200-F May 1997).

Table 5-3
Total RH TRU Waste Inventory (Storage), Generation, and Disposal Volumes:
FY 2000 - FY 2034

In cubic meters

State	Site	Site Code	FY 2000 Inventory (Storage ^a)	Projected Generation	Total (Inventory/Storage + Projected Generation)	Disposed at WIPP (By end of 2000)	Planned Disposal at WIPP ^b
CA	Energy Technology Engineering Center	ETEC	9	-	9	-	6
	General Electric-Vallecitos Nuclear Center ^c	GE-VNC	12	-	12	-	12
ID	Argonne National Laboratory - West	ANLW	24	30	55	-	55
	Idaho National Engineering and Environmental Laboratory	INEEL	85	-	85	-	85
IL	Argonne National Laboratory - East	ANLE	1	76	77	-	37
NM	Los Alamos National Laboratory	LANL	99	24	124	-	120
	Sandia National Laboratories-NM ^d	SNLN	1	24	26	-	-
NY	Knolls Atomic Power Laboratory	KAPL	4	7	11	-	11
	West Valley Demonstration Project ^e	WVDP	467	12	479	-	-
OH	Columbus Environmental Management Project- West Jefferson (Battelle Columbus Laboratories)	CEMP	-	21	21	-	21
PA	Bettis Atomic Power Laboratory	BAPL	3	-	3	-	3
TN	Oak Ridge Reservation ^f	ORTN	1,342	911	2,253	-	668
WA	Hanford Site	HASI	200	700	900	-	800
Total			2,246	1,782	4,027	0	1,816

Notes:

- Hyphens indicate volumes of zero.
- Due to data rounding, the totals in this table may not equal the exact sum of the site-specific data. See also footnote d below.

^a The collection and management of waste for the purpose of awaiting treatment or disposal capability, in such a manner as to not constitute disposal of the waste.

^b The quantities reflect any volumetric expansion or reduction that would occur during waste processing.

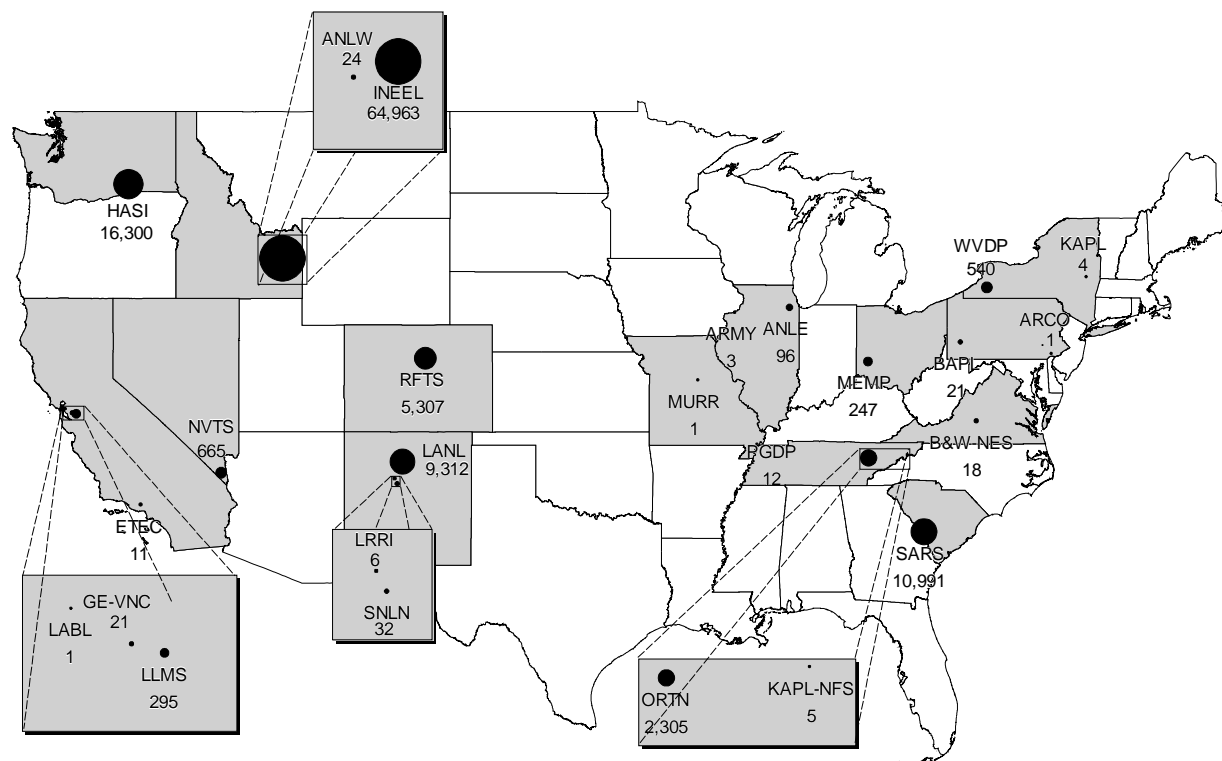
^c Waste may not be of defense origin; compliance with WIPP Land Withdrawal Act (LWA) requirement will need to be demonstrated prior to disposal at WIPP.

^d Waste from SNLN is shipped to LANL. SNLN total waste volume of 25.5 cubic meters is included in the LANL total waste volume.

^e Waste is from commercial origin and does not meet the LWA requirement for disposal at WIPP.

^f Oak Ridge National Laboratory (within the Oak Ridge Reservation).

Figure 5-5
TRU Waste Volume (Combined CH & RH) in Inventory as Reported by Sites:
FY 2000 Actuals



Notes:

- Volumes shown in cubic meters.
- While the actual site volumes are labeled numerically on the map, the volume *icons* are based on a logarithmic scale to differentiate more easily between the sites' relative inventories.

5.4.2 CH and RH TRU Waste: Projected Number of Shipments to WIPP

Table 5-4 shows the projected number of CH TRU shipments to WIPP for disposal according to sites' shipping schedules. Beginning in FY 2001 and ending in FY 2034, sites expect to ship a total of 17,577 shipments to WIPP. INEEL is scheduled to make 55 percent of the shipments; Rocky Flats, 12 percent; Savannah River Site, 11 percent; Hanford, 10 percent; and Los Alamos National Laboratory, 10 percent. Other sites listed in the table will ship the remaining two percent of the total.

Table 5-4
Total Projected Number of CH TRU Waste Shipments to WIPP for Disposal:
FY 2001 - FY 2034^a

State	Site	Site Code	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010
CA	Lawrence Livermore National Laboratory - Main Site	LLMS	-	-	-	13	7	7	10	8	3	3
CO	Rocky Flats Environmental Technology Site	RFTS	175	480	480	480	480	90	-	-	-	-
ID	Idaho National Engineering and Environmental Laboratory	INEEL	170	216	199	408	508	501	570	685	565	623
IL	Argonne National Laboratory - East	ANLE	-	15	-	-	-	-	-	-	-	3
NM	Los Alamos National Laboratory	LANL	19	46	61	91	122	161	177	168	162	166
NV	Nevada Test Site	NVTS	-	33	-	-	71	-	-	-	8	-
OH	Miamisburg Environmental Management Project (Mound)	MEMP	-	-	-	30	-	-	-	-	-	-
SC	Savannah River Site	SARS	34	68	12	12	12	12	12	12	12	12
TN	Oak Ridge Reservation ^b	ORTN	-	-	-	56	32	3	3	3	1	1
WA	Hanford Site	HASI	5	6	22	48	61	63	58	59	60	60
Total			403	864	774	1,138	1,293	837	830	935	811	868

State	Site	Site Code	FY 2011-2015	FY 2016-2020	FY 2021-2025	FY 2026-2030	FY 2031-2034	Site Total
CA	Lawrence Livermore National Laboratory - Main Site	LLMS	11	11	11	11	11	106
CO	Rocky Flats Environmental Technology Site	RFTS	-	-	-	-	-	2,185
ID	Idaho National Engineering and Environmental Laboratory	INEEL	3,427	1,211	317	221	-	9,621
IL	Argonne National Laboratory - East	ANLE	-	4	-	4	-	26
NM	Los Alamos National Laboratory	LANL	114	114	114	114	114	1,743
NV	Nevada Test Site	NVTS	-	-	-	-	-	112
OH	Miamisburg Environmental Management Project (Mound)	MEMP	-	-	-	-	-	30
SC	Savannah River Site	SARS	108	300	480	600	143	1,829
TN	Oak Ridge Reservation ^b	ORTN	5	5	5	5	5	124
WA	Hanford Site	HASI	454	411	304	144	46	1,801
Total			4,119	2,056	1,231	1,099	319	17,577

Notes:

- Hyphens indicate volumes of zero.
- Due to data rounding, the totals in this table may not equal the exact sum of the site-specific data.

^a Includes only TRU waste generator sites with defined shipping schedules. When shipping schedules are determined for sites with small quantities of waste, the information will be added to the next revision of the National TRU Waste Management Plan.

^b Oak Ridge National Laboratory (within the Oak Ridge Reservation).

Table 5-5 shows the projected number of RH TRU shipments to WIPP for disposal according to sites' shipping schedules. Beginning in FY 2002 and ending in FY 2034, sites expect to ship a total of 1,914 RH TRU waste shipments to WIPP. Hanford is scheduled to make 48 percent of the shipments; Oak Ridge Reservation, 25 percent; INEEL, 13 percent; Los Alamos National Laboratory, six percent; Argonne National Laboratory - East, six percent; and Battelle Columbus Laboratories and Energy Technology Engineering Center combined will ship the remaining two percent.

Table 5-5
Total Projected Number of RH TRU Waste Shipments to WIPP for Disposal:
FY 2001 - FY 2034^a

State	Site	Site Code	FY 2002 ^b	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010
CA	Energy Technology Engineering Center	ETEC	6	-	-	-	-	-	-	-	-
ID	Idaho National Engineering and Environmental Laboratory	INEEL	-	-	-	-	-	33	41	41	41
IL	Argonne National Laboratory - East	ANLE	-	28	-	-	-	-	-	-	21
NM	Los Alamos National Laboratory	LANL	-	-	-	-	-	-	-	-	-
OH	Columbus Environmental Management Project- West Jefferson (Battelle Columbus Laboratories)	CEMP	40	-	-	-	-	-	-	-	-
TN	Oak Ridge Reservation ^c	ORTN	-	71	126	33	33	33	24	5	8
WA	Hanford Site	HASI	-	-	-	-	-	-	-	-	-
Total			46	99	126	33	33	66	65	46	70

State	Site	Site Code	FY 2011-2015	FY 2016-2020	FY 2021-2025	FY 2026-2030	FY 2031-2034	Site Total
CA	Energy Technology Engineering Center	ETEC	-	-	-	-	-	6
ID	Idaho National Engineering and Environmental Laboratory	INEEL	99	-	-	-	-	255
IL	Argonne National Laboratory - East	ANLE	-	30	-	30	-	109
NM	Los Alamos National Laboratory	LANL	111	-	-	-	-	111
OH	Columbus Environmental Management Project- West Jefferson (Battelle Columbus Laboratories)	CEMP	-	-	-	-	-	40
TN	Oak Ridge Reservation ^c	ORTN	28	28	28	28	28	473
WA	Hanford Site	HASI	110	250	250	250	60	920
Total			348	308	278	308	88	1,914

Notes:

- Hyphens indicate volumes of zero.
- Due to data rounding, the totals in this table may not equal the exact sum of the site-specific data.

^a Includes only TRU waste generator sites with defined shipping schedules. When shipping schedules are determined for sites with small quantities of waste, the information will be added to the next revision of the National TRU Waste Management Plan.

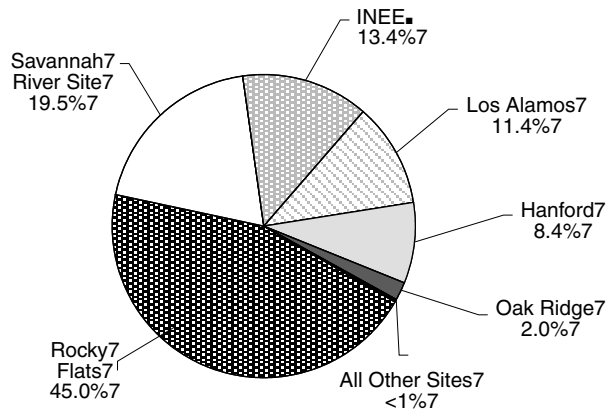
^b There were no RH TRU-Waste shipments to WIPP for disposal reported for FY 2001.

^c Oak Ridge National Laboratory (within the Oak Ridge Reservation).

5.5 TRU Waste Radioactivity Data

The best TRU waste radioactivity data currently available were published in the DOE's *Integrated Database Report—1996, Revision 13*.³ These data on TRU waste radioactivity estimates are provided in Figures 5-6 and 5-7 and Table 5-6.

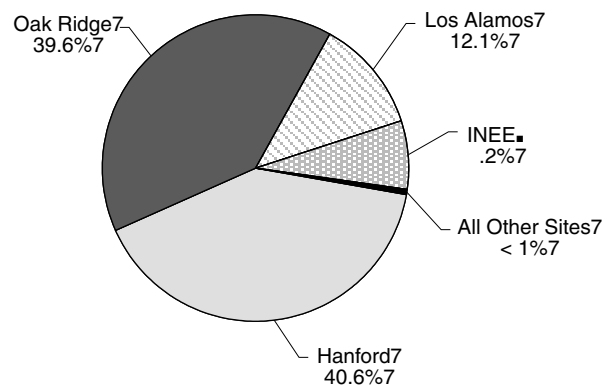
Figure 5-6
Sites' Relative Contributions to the
Radioactivity of CH TRU Waste Volume
in Inventory (as of FY 1996)



Notes:

- As of FY 1996, the total radioactivity of CH TRU waste in inventory (storage) was approximately 2,510,511 curies. See Table 5-6 for further details.
- Percentages may not add to exactly 100% due to data rounding.

Figure 5-7
Sites' Relative Contributions to the
Radioactivity of RH TRU Waste Volume
in Inventory (as of FY 1996)



Notes:

- As of FY 1996, the total radioactivity of RH TRU waste in inventory (storage) was approximately 88,615 curies. See Table 5-6 for further details.
- Percentages may not add to exactly 100% due to data rounding.

³ U.S. Department of Energy, Office of Environmental Management, *Integrated Data Base Report—1996: U.S. Spent Nuclear Fuel and Radioactive Waste Inventories, Projections, and Characteristics*, DOE/RW-0006, Rev. 13 (December 1997).

Table 5-6
Estimated Radioactivity of CH and RH TRU Waste in Inventory at the End of FY 1996^a

In curies

State	Site	Site Code	CH Radioactivity ^b	RH Radioactivity ^c	Total (CH+RH) Radioactivity	% Total (CH+RH) Radioactivity
CA	Energy Technology Engineering Center	ETEC	0.72	17.40	18.12	<1
	Lawrence Berkeley National Laboratory	LABL	0.03	-	0.03	<1
	Lawrence Livermore National Laboratory - Main Site	LLMS	2,270.00	-	2,270.00	<1
CO	Rocky Flats Environmental Technology Site	RFTS	1,130,000.00	-	1,130,000.00	43.5
ID	Argonne National Laboratory - West	ANLW	110.00	-	110.00	<1
	Idaho National Engineering and Environmental Laboratory	INEEL	337,000.00	6,360.00	343,360.00	13.2
IL	Argonne National Laboratory - East	ANLE	110.00	-	110.00	<1
	U.S. Army Material Command	ARMY	18.00	-	18.00	<1
KY	Paducah Gaseous Diffusion Plant	PGDP	0.29	-	0.29	<1
MO	Missouri University Research Reactor	MURR	0.36	-	0.36	<1
NM	Los Alamos National Laboratory	LANL	285,000.00	10,700.00	295,700.00	11.4
	Sandia National Laboratories - NM	SNLN	5.41	-	5.41	<1
NV	Nevada Test Site	NVTS	3,230.00	149.00	3,379.00	<1
NY	Knolls Atomic Power Laboratory - Schenectady	KAPL	-	118.00	118.00	<1
	West Valley Demonstration Project	WVDP	36.50	140.00	176.50	<1
OH	Miamisburg Environmental Management Project	MEMP	1,560.00	-	1,560.00	<1
PA	ARCO Medical Products Company	ARCO	370.00	-	370.00	<1
SC	Savannah River Site	SARS	490,000.00	30.90	490,030.90	18.9
TN	Oak Ridge Reservation	ORTN	50,800.00	35,100.00	85,900.00	3.3
TX	Pantex Plant	PAPL	0.06	-	0.06	<1
WA	Hanford	HASI	210,000.00	36,000.00	246,000.00	9.5
Total			2,510,511.37	88,615.30	2,599,126.67	100

Notes:

- Hyphens indicate volumes of zero.
- Due to data rounding, the totals in this table may not equal the exact sum of the site-specific data.
- The four sites that have inventories of TRU Waste at the end of FY 2000, but were not included in the 1996 dataset, are not shown in this table. They are Babcock & Wilcox - NES, Bettis Atomic Power Laboratory, General Electric Vallecitos Nuclear Center, Knolls Atomic Power Laboratory - Nuclear Fuel Services.

^a Decayed to the end of FY 1996.^b The isotopic content of CH TRU waste in inventory includes: 238Pu, 239Pu, 240Pu, 241Pu, and 241Am.^c The isotopic content of RH TRU waste in inventory includes: 60Co, 90Sr, 90Y, 137Cs, 137mBa, 152Eu, 154Eu, 241Pu, and 244Cm.

Source: U.S. Department of Energy, Office of Environmental Management, *Integrated Data Base Report—1996: U.S. Spent Nuclear Fuel and Radioactive Waste Inventories, Projections, and Characteristics*, DOE/RW-0006, Rev. 13 (December 1997).